

Resin Material Comparison

| MATERIAL | ASTM TEST METHOD | ACRYLIC | PETG |
|--|------------------|--|---|
| Physical Properties | | | |
| Specific Gravity | D-792 | 1.19 | 1.27 |
| Optical Refractive Index | D-542 | 1.49 | 1.57 |
| Total Light Transmittance | D-1003 | 92% | 91% |
| Haze Light Transmittance | D-1003 | 2% | <1% |
| Sound Transmission[1/8"(3mm)] | E-90 | 27db | 25db |
| Water Absorption | D-570 | 0.40% | 0.20% |
| Mechanical Properties | | | |
| Tensile Strenght | | 11,000 psi (76.1 Mpa) | 7,700 psi (53 Mpa) |
| | D-638 | | |
| Tensile Elongation Max | D-638 | 5.80% | 4.80% |
| | D-638 | | |
| Tensile Modulus | | 490,000 psi (3378 Mpa) | 320,000 psi (2200 Mpa) |
| Flexural Strenght Max | | 17,000 psi (117.2 Mpa) | 11,200 psi (77 Mpa) |
| | D7-90 | | |
| Flexural Modulus | | 49,000 psi 3378 Mpa | 310,000 psi (2100 Mpa) |
| | D7-90 | | |
| Izod Impact Strenght -Milled | D-256 | 0.28 ft-lb/in (14.9 J/m) | 1.7 ft-lb/in (88 J/m) |
| Notch room temp | | | |
| Rockwell Hardness | D-785 | M-95 | 115 |
| Water Absorption (24hr Immersion) | | 0.40% | 0.20% |
| Impact Resistance Notched* | | 0.28 ft-lbs/in (14.9 J/m) | 1.7 ft-lbs/in (88 J/m) |
| THERMAL PROPERTIES | | | |
| Maximum Continous Service Temperature | | 170-190? F (77-88?C) | 150? (66? C) |
| Softening Temperature | | 210-220? F (99-104?C) | 181? (83? C) |
| Deflection Temperature Service Temperature | D-648 | 203? F (95? C) | 164?F (74? C) |
| Coefficient of Thermal Expansion | D-696 | 3.0x10e-5in(in-?F) 5.4x10e-5m(m-?C) | 5.0x10e-5in(in-?F) 9.0x10e-5m(m-?C) |
| Thermal Conductivity | C-177 | 0.90 btu-in/(hr-ft ² -?F) (.0013 w/(cm-?C) | 1.67 btu-in/(hr-ft ² -?F) (.0024 w/cm-?C) |
| FLAMMIBILITY PROPERTIES | | | |
| Fire Rating | D635-03 | PASS CC2 | PASS CC1 |
| Smoke Density | D2843-99 | Pass, 4.8% (75% max) | |
| Rate of Ignition | D1929-96 | Pass, 716°F (380°C) [min 650°F (343°C)] | Pass, 56.6% (75% max) [min 650°F (343°C)] |
| OPTICAL/AUDIO PROPERTIES | | | |
| UV Stability* | | Excellent | Fair |
| Light Transmittance* | | 92% | 91% |
| Optical Refractive Index | | 1.49 | 1.57 |

NOTE- The data provided pertains to the base raw material only as used in the manufacture of Sorea material. These Suggestions and data are based on information we believe to be reliable. The data is offered in good faith, but without guarantee, as conditions and method of use are beyond our control. We recommend prospective users determine the suitability of Sorea materials and suggestions before adopting on a commercial scale. In no case is Sorea LLC liable for direct, consequential, economic or other damages. Sorea disclaims all other warranties, expressed or implied, including the warranty of merchantability and fitness for a particular purpose. Sorea does not recommend using it's products to support human loads.